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Epigenetics and phenotypic variability: some interesting insights from birds

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More and more studies show that epigenetic information affects the phenotypes of individuals. Little is known about the epigenetic mechanisms in birds, although, as in many animal and plant species, these mechanisms may be involved in trait variability. This presentation reviews the literature on epigenetic mechanisms that could contribute significantly to trait variability in birds, and compares the results to the existing knowledge of epigenetic mechanisms in mammals. Several results obtained in the laboratory will also be presented. The main issues addressed in this presentation are: (1) Does genomic imprinting exist in birds? (2) How does the embryonic environment influence the adult phenotype in avian species? (3) Does the embryonic environment have an impact on phenotypic variability across several successive generations? The potential for epigenetic studies to improve the performance of individual animals through the implementation of limited changes in breeding conditions or the addition of new parameters in selection models is still an open question.